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Life satisfaction, family dysfunction, commitment to tasks as predictors of internet addiction in high school students

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Abstract

Background: Internet Addiction (IA) in schoolchildren is becoming a public health problem. There are several factors associated with the dysfunctional characteristics of IA.
Objective: The objective of this research was to examine sociodemographic factors, life satisfaction, family dysfunction, and commitment to tasks as predictors of IA in school students.
Methods: A total of 361 basic education students of average age between 11 and 19 participated (M=14.2, SD= 1.90). A multiple linear regression analysis was performed by entering sociodemographic factors, life satisfaction, family dysfunction, commitment to tasks affecting internet addiction in schoolchildren, categorical variables such as gender and age were entered as dummy coding.
Results: The results indicated that age 11 to 13 years, symptomatologic characteristics of internet addiction, severe family dysfunction and lower engagement with behavioral tasks and lower cognitive engagement are associated with greater dysfunctional characteristics of IA. Likewise, the female gender, life satisfaction, a greater commitment to tasks in an effective way is associated with fewer symptoms of internet addiction.
Conclusion: Students with IA were associated with lower life satisfaction, less homework commitment, and increased family dysfunction.

Keywords:

Internet Addiction, Life Satisfaction, Family Dysfunction, Commitment, Tasks.

Introduction

The use of the internet has increased and is considered an integral part of everyday life. Schoolchildren are the main users and the most vulnerable group due to increased use of the internet (Malak et al., 2017). Schoolchildren are more vulnerable to excessive use of the internet because their physical or mental development is not yet fully developed (van den Eijnden et al., 2008). Studies indicate that users who are not able to control their own online activity may develop pathological and abnormal behaviors by presenting excessive use of the Internet in online activities such as games that affect daily life and cause increased Internet Addiction (IA) (Younes et al., 2016; Wu et al., 2016). IA is defined as compulsive behaviors related to online activities and in which the condition of functioning is affected, causing psychological, cognitive and physical damage(Price, 2016; Weinstein et al., 2014). IA is linked

to traits of introversion, narcissism, lack of self-control, and neuroticism(Kim et al., 2008). Withdrawal incurs depression, nervousness, gradual deterioration of the academic environment, family, personal and social life (Karaer et al., 2019).

One of the factors that influence the prevalence of IA is the upbringing of schoolchildren, since less parental guidance increases IA (Kwisook Choi et al., 2009). The family plays an important role in mitigating problematic and risk behaviors, since the degree of functionality affects behavior, thus, low family functionality leads to greater consumption of substances, alcohol, and AI (Yen et al., 2007). Family functionality refers to the promotion of both physical and psychological growth and maturation of all family members(Smilkstein, 1978). Low functionality may be associated with fewer resources, poor relationships between family members, and lack of parental support (Wu et al., 2016).

School engagement is an indicator of the extent to which students are willing to fulfill homework. Commitment to homework is one of the factors closely related to students' academic performance (Zhang et al., 2018). Commitment to tasks is negatively related to internet addiction. Given that the uncontrolled use of the internet implies a dysfunction in daily life and also the dysfunctionality with daily tasks by having less responsibility for academic life (Tas, 2017; Zhang et al., 2018). For the more the frequency and duration of Internet use increase, the greater the problems with the use of the Internet, since it is used for entertainment purposes and not for research or information (Hawi, 2012). Likewise, commitment can be divided into three aspects: a) motivation is negatively related to IA, since the limbic function that is related to the motivation and inhibition of internet addicts is impaired; b) commitment, by showing less commitment to academics, by presenting a disaffection with learning activities and; c) an increase in school attrition due to excessive use of the Internet (Nie et al., 2016; Lehenbauer-Baum et al., 2015; Skinner et al., 2008)

Subjective well-being is defined as the assessment that the person makes about his life, his events, his minds or bodies, also the circumstances in which they live(Diener, 2006). It is essential to be able to evaluate the factors that influence this construct in school-age students, since the experiences lived at this stage are decisive for their present life and allow the development of cognitive, social and emotional abilities (Donoso et al., 2021). Personal strengths are psychological mechanisms that enable adolescent development. IA is a maladaptive behavior to life satisfaction, as adolescents tend to escape reality and enjoy the virtual world for a long time (Dou et al., 2021).

To the best of our knowledge, few studies have addressed the influence of life satisfaction, family dysfunction, task commitment factors (affective, behavioral, and cognitive), and AI symptomatology in schoolchildren on AI dysfunctional characteristics. Well, due to the growth of internet access in Ecuador, it is necessary to strengthen the role of families and institutions to provide students with adequate strategies for their use. Within basic education in Ecuador, the use of digital tools is important, since they impact education due to its great benefits that come with using it for a better organized and planned management of all the teaching to be received by students (Pinargote et al., 2022). Therefore, this research aimed to examine sociodemographic factors, life satisfaction, family dysfunction, and commitment to tasks as predictors of IA in basic education students.

Method

Study Design

This study used a descriptive and cross-sectional design to identify the influence of life satisfaction, family dysfunction, task commitment as predictors of IA in Ecuadorian high school students.

Participants, sample, and sample size calculation

The study participants were secondary education students from the general basic upper (8th, 9th and 10th) to high school (1st, 2nd and 3rd) located in the City of Quito, Ecuador. The inclusion criteria were as follows: a) Accept the assent and informed consent of students and guardians or parents, b) belong to the secondary level.

The sample size was calculated using the program G*Power 3.1.9.7 (Erdfelder et al., 2009) The number of explanatory variables in multiple linear regression is 7; For an effect size of 0.10, a statistical power of (1 − ß) 0.95, and a significance level (α) of 0.05 for a multiple regression analysis, the minimum sample size required was 226. Potential attritions were considered, and 361 validated data were analyzed.

Procedure

After receiving approval from the director of the Educational Unit, the research was presented to the tutors or parents of the students indicating the objective and procedures of the study. The parents gave their informed consent for the participation of their minor child, through a written form. Subsequently, the students whose parents agreed to participate gave their assent to continue with the investigation. Students completed questionnaires in group sessions with parents and guardians. The form was developed by the google from application, allowed all variables to be managed and easily accessible for students to complete. The

study protocol was reviewed by a Peruvian university with code 2021- CE-EPG-000054 and following principles established in the Declaration of Helsinki.

Instruments

Demographic questionnaire: Demographic characteristics were gender, age, and school level.

Student Life Satisfaction Scale (SLSS): The Spanish version (33) based on the SWLS scale by Diener and his colleagues will be used (Diener et al., 1985). The scale evaluates life satisfaction globally, as a one-dimensional construct. The SLSS consists of 7 items and consists of a 6-point scale, where 1 equal Strongly disagree and 6 to Strongly agree, indicating greater satisfaction with higher scores. Regarding the reliability of the scale, Cronbach's Alpha indices ranging from 0.73 to 0.88(Galindez et al., 2010).

Family dysfunction: The Spanish translation of APGAR (Suarez Cuba et al., 2014)of the English version (Smilkstein et al., 1982) was used. It evaluates five basic functions of the family considered the most important by the author: Adaptation, Participation, Gradient of personal resource, Affection, and Resources. With 5 questions and 3 answer options ranging from 0 to 3 (almost always = 0, sometimes = 1 and almost never = 2), obtaining at the end an index of 0 and 10, where a score of 7-10 indicates normal functionality; 4-6 points indicates moderate dysfunction and a score of 0-3 points indicates severe dysfunction.

Commitment to tasks: The Spanish version (Rigo et al., 2018) of the commitment to tasks scale was used. The instrument consists of 18 items that measure the three dimensions that make up the commitment of students to learning tasks in the class of schoolchildren. The scale has 5 Likert-type response options from 1 = always to 5 = almost never. The reliability for each dimension was equal to 0.71 for the affective dimension; 0.76 for behavioral; and 0.70 for cognitive.

Internet addiction**:** The Spanish version of the Lima Internet Addiction Scale by its acronym in Spanish Escala de Adicción a Internet de Lima (EAIL)(Lam-Figueroa et al., 2011). The two-dimensional coast scale: a) symptoms of IA and b) IA dysfunction. The scale has 11 items with Likert-type multiple-choice answers of four options: 1) Very rarely, 2) Rarely, 3) Often, 4) Always. The scale showed good internal consistency using Cronbach's alpha with a score of 0.84.

Statistical analysis

Data were analyzed using free software R 4.1.1. Descriptive statistics were used to summarize participant characteristics as appropriate in percentage or mean with standard deviation (SD). To identify gender differences, it was explored using the chi-square test for categorical variables. In addition, for life satisfaction and IA factors, the Student's t-test is taken to test gender differences. To identify the explanatory power and factors, a multiple linear regression analysis was performed by entering the factors of life satisfaction, family dysfunction, commitment to tasks affecting internet addiction in schoolchildren, after adjusting for the demographic characteristics of the participants. Categorical variables such as gender and age were entered as dummy coding, as it allows a dummy coding to represent qualitative variables in a linear regression.

Results

General characteristics of the population

A total of 361 basic education students were analyzed (Table 1), who had an average age of 11 to 19 (M=14.2, SD= 1.90). It is observed that the proportions of the age groups do not present a significant difference between women and men ($p > 0.05$). Likewise, it is observed that the proportions in the categories of the variable's family dysfunction, affective, behavioral, and cognitive commitment are significantly different between female and male ($p < 0.01$).

Table 1. Distribution of sociodemographic variables.

	Total		**Female**		**Male**		
	n	**%**	**n**	**%**	**n**	**%**	
Age groups							
11-13	149	41.3%	73	41.0%	76	41.5%	
14-16	170	47.1%	77	43.3%	93	50.8%	
17-19	42	11.6%	28	15.7%	14	7.7%	0.46
Family dysfunction							
Grave	105	29.1%	38	21.3%	67	36.6%	
Moderate	188	52.1%	97	54.5%	91	49.7%	
Normal	68	18.8%	43	24.2%	25	13.7%	
Affective commitment							<0,001
Greater Commitment	107	29.6%	7	3.9%	100	54.6%	

Less engagement	183	50.7%	157	88.2%	26	14.2%	
Moderate engagement	71	19.7%	14	7.9%	57	31.1%	
Behavioral engagement							<0,001
Greater Commitment	102	28.3%	1	0.6%	101	55.2%	
Less engagement	202	56.0%	170	95.5%	32	17.5%	
Moderate engagement	57	15.8%	7	3.9%	50	27.3%	
Cognitive engagement							<0,001
Greater Commitment	136	37.7%	0	0.0%	136	74.3%	
Less engagement	177	49.0%	169	94.9%	8	4.4%	
Moderate engagement	48	13.3%	9	5.1%	39	21.3%	

Data presented as absolute and relative frequency (%). *P<0.05, **P<0.01, statistically significant per chi-square

Comparative analysis

Comparative analyses (Table 2) show that women have higher levels of life satisfaction than men (t = 15.92, p < 0.001). Eating was also found to be healthier in women compared to men (t = -4.68, p < 0.01). Regarding the IA both dysfunctional (t = 0.367 p > 0.05) and symptomatologic (t = 0.584, p > 0.05) characteristics, no differences were found.

Table 2. Life satisfaction, dysfunctional features, and symptomatologic features according to gender

	Female		Male				
	M	SD	M	SD	t - value	Pr(>F)	
Life satisfaction	17.47	5.778	14.46	6.397	-4.6837	<0.001	***
IA (dysfunctional features)	15.38	4.423	15.57	5.425	0.3675	0.7135	
IA (symptomatologic features)	4.50	1.955	4.63	2.210	0.58419	0.5595	

*Sig. Code: 0 '***'; M = Mean, SD = standard deviation.*

Multivariate analysis

Multivariate regression analysis (Table 3) shows that age from 11 to 13 (β = 0.397, p < 0.05), symptomatologic characteristics of internet addiction (β = 0.209, p < 0.001), severe family dysfunction (β = 0.439, p < 0.05) less commitment to tasks in the behavioral factor (β = 1.082, p < 0.01) and cognitive (β = 1.506, p < 0.01) are associated with greater dysfunctional features of Internet addiction. However, female gender (β = -2.521, p < 0.001), life satisfaction (β = -0.034, p < 0.05), greater commitment to tasks in the affective factor (β = -0.719, p < 0.05) are variables associated with presenting fewer symptoms of internet addiction. The variables analyzed in this model significantly explain 43.3% of the variability of life satisfaction (R2 = 0.433, F = 26.78, p = <0.001).

Table 3. Multivariate analysis of factors related to life satisfaction

	Estimate	**Std. Error**	**t value**	**Pr(>|t|)**	
(Intercept)	1.745	0.445	3.914	< 0.001	***
Age (11-13 years)	0.397	0.195	2.034	0.042	*
Gender (Female)	-2.521	0.550	-4.579	< 0.001	***
Life satisfaction	-0.034	0.016	-2.146	0.032	*
IA (symptomatologic features)	0.208	0.020	10.224	< 0.001	***
Family dysfunction (Severe)	0.439	0.223	1.969	0.049	*
Affective Commitment (Greater Commitment)	-0.719	0.278	-2.582	0.010	*
Behavioral Engagement (Lower Engagement)	1.082	0.347	3.118	0.002	**
Cognitive Engagement (Lower Engagement)	1.506	0.539	2.793	0.005	**
R-squared	0.433				
Adjusted R-squared	0.417				
F (*P*)	26.78 *(< 0.001)*				

Dependent = dysfunctional characteristics due to Internet Addiction; *t*= Test statistic; *P*= Probability; [a] =Dummy coded. *Signif. codes: 0 '***' 0.001 '**' 0.01 '*'*

Discussion

The use of the internet in schoolchildren has intensified because of educational, entertainment and communication purposes. Given the continuity of use, IA addiction along with dysfunctional features has been

on the rise. The prevention of IA in schoolchildren is a task that involves parents, schools and the various actors involved in education. Therefore, this study aimed to identify sociodemographic factors, subjective well-being, family dysfunction and commitment to tasks associated with dysfunctional characteristics due to Internet Addiction in basic education students.

This study indicated a higher incidence of IA in early adolescence (11 to 13 years), as reported in previous studies(Wu et al., 2016; Ko et al., 2005). However, other studies indicated that age is not associated with the level of IA (Lam et al., 2009; Ko et al., 2009). Likewise, gender is a risk factor for IA (Ozturk et al., 2021; Martins et al., 2020) in the present study she found a negative influence between being a woman and IA. Previous studies indicate that being male is associated with an increased risk factor for IA. This is due to the different personality patterns of girls and that they have greater self-control, emotional regulation and early biopsychosocial maturation that reduces the tendency to IA (Dong et al., 2020). However, other studies suggest that gender is not associated with IA, so further research is needed to allow an evaluation to clarify the gender effect. The results also indicated that there was no significant gender difference in IA, so both genders could become more addicted to different electronic devices (Ko et al., 2005; Lam et al., 2009).

Severe family dysfunction positively influences dysfunctional characteristics due to Internet addiction. Similar studies indicate that high levels of severe family conflict predict IA (Wu et al., 2016). This is because the lack of control or follow-up by parents causes an increase in relationships with IA in schoolchildren (Karaer et al., 2019; Özparlak et al., 2020). Social control theory indicates that students who have a greater attachment to parents exhibit non-deviant behaviors, while those with high levels of family conflict reject parental supervision or control, causing problematic behavior(Wright et al., 2001).

Severe family dysfunction indicates poor care in love, parenting responsibilities, insufficient dedication, lack of parental support and guidance. Constant work on the part of parents is necessary to cover the needs of the children and children since insufficient care makes them more likely to be psychologically unstable. Environments of social competence, focused on academic achievement subject to great pressure and high expectations incur to grow without the warmth of parents. Given this, relationships of inclusion, affection and belonging must be built through virtual networks(O'Reilly, 1996; Davis, 2001).

The results also indicate that the greater affective commitment influences a lower addiction to the Internet and the lower affective and cognitive commitment tends to increase internet addiction. Previous studies indicate similar results in which students with higher levels of internet addiction suffered from a lower level of commitment and greater dissatisfaction with both behavioral and emotional learning, leading to lower academic performance. However, some theorists of scenario-environment adjustment indicate that it is unrelated because commitment to tasks is affected by the quality of teachers and schools in meeting adolescents' needs for autonomy and competence. Therefore, if the environment meets the needs of the student, there will be a greater acceptance and connection with learning(Zhang et al., 2018; Bao et al., 2012).

The results also indicated that life satisfaction had a negative effect with IA. Previous studies indicate that the indiscriminate use of technology negatively affects the life satisfaction of schoolchildren (Donoso et al., 2021). This is because exposure at an early age and lack of parental supervision incur a lack of social life and have little confidence. Since students are more vulnerable to addiction, having greater access and flexible hours (Azmi et al., 2019). A propensity for mobile device addiction reduces the quality of relationships and requires interventions to reduce interaction with virtuality and increase the quality of peer relationships (Jihye Choi et al., 2021).

This study provides practical implications that can prevent IA, as educational organizations and parents need to be aware of the detrimental effects of IA. Therefore, improving approaches to communication and involvement with parents will help ensure the quality of communication and time with schoolchildren, increasing communication can be a protective factor to avoid IA. In addition, educational and policy agencies can develop positive strategies that enable adolescents to improve the way they perceive their lives, so programs that diagnose, protect, and treat students long before IA addictions emerge. Also, these strategies could be related to a greater commitment to tasks since it allows agencies to develop training programs or educational plans for both teachers and students to improve personal strengths for the educational field.

Limitations

There are also some limitations in this study, since the data were collected through self-completed questionnaires, and the influential factors are perceived only by the students, missing information from tutors or parents. In addition, the study was cross-sectional, so no cause or effect can be determined regarding IA and possible influencing factors. Longitudinal investigations are recommended, which allow the evaluation of IA with other related factors. Third, the study involved a questionnaire, the students surveyed may have underestimated the information that would give them a perception of bad image. Also, the questionnaire lacked defined diagnostic criteria and was a self-report. Therefore, psychological interviews are recommended for a better evaluation and to identify better preventive strategies. This research did not include all factors associated with IA, therefore, in further studies they should attempt to determine additional factors.

Conclusions

In conclusion, although this study is very preliminary and certain factors can be overlooked, it showed that students who had Internet addiction were associated with lower life satisfaction, lower commitment to tasks and an increase in family dysfunction. So positive family relationships play an important role in IA prevention. The identification of these factors contributes to the development of strategies to mitigate Internet addiction among adolescents and suggests family-based interventions that include greater communication and interaction skills to strengthen family functionality rather than restrict Internet use.

Conflict of Interest

The authors report no conflicts of interest in this work.

Author Contributions

VE-D participated in the conceptualization, VE-D were in charge of the methodology and software. For validation, formal analysis and research, VE-D. VE-D commissioned data and resource conservation. First draft writing, review, and editing, visualization, and supervision were handled by VE-D. All authors have read and approved the final version of the manuscript.

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